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ALIGNMENT-MARK PATTERNS DEFINED ON A STENCIL RETICLE
AND DETECTABLE, AFTER LITHOGRAPHIC TRANSFER TO A
SUBSTRATE, USING AN OPTICAL-BASED DETECTOR

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Abstract of the Disclosure

Alignment-mark patterns are disclosed that are defined on stencil reticles and that can be transferred lithographically from the reticle to a sensitized substrate using charged-particle-beam microlithography. The corresponding alignment marks as transferred to the substrate are detectable at high accuracy using an optical-based
10 alignment-detection device (e.g., an FIA-based device). The transferred alignment marks can be used in place of alignment marks used in optical microlithography systems. An alignment-mark pattern as defined on a stencil reticle includes pattern elements that are split in any of various ways into respective pattern-element portions separated from each other on the membrane of the stencil reticle by
15 "girders" (band-like membrane portions) that prevent the formation of islands in the stencil reticle and that prevent deformation of the pattern elements on the stencil reticle.